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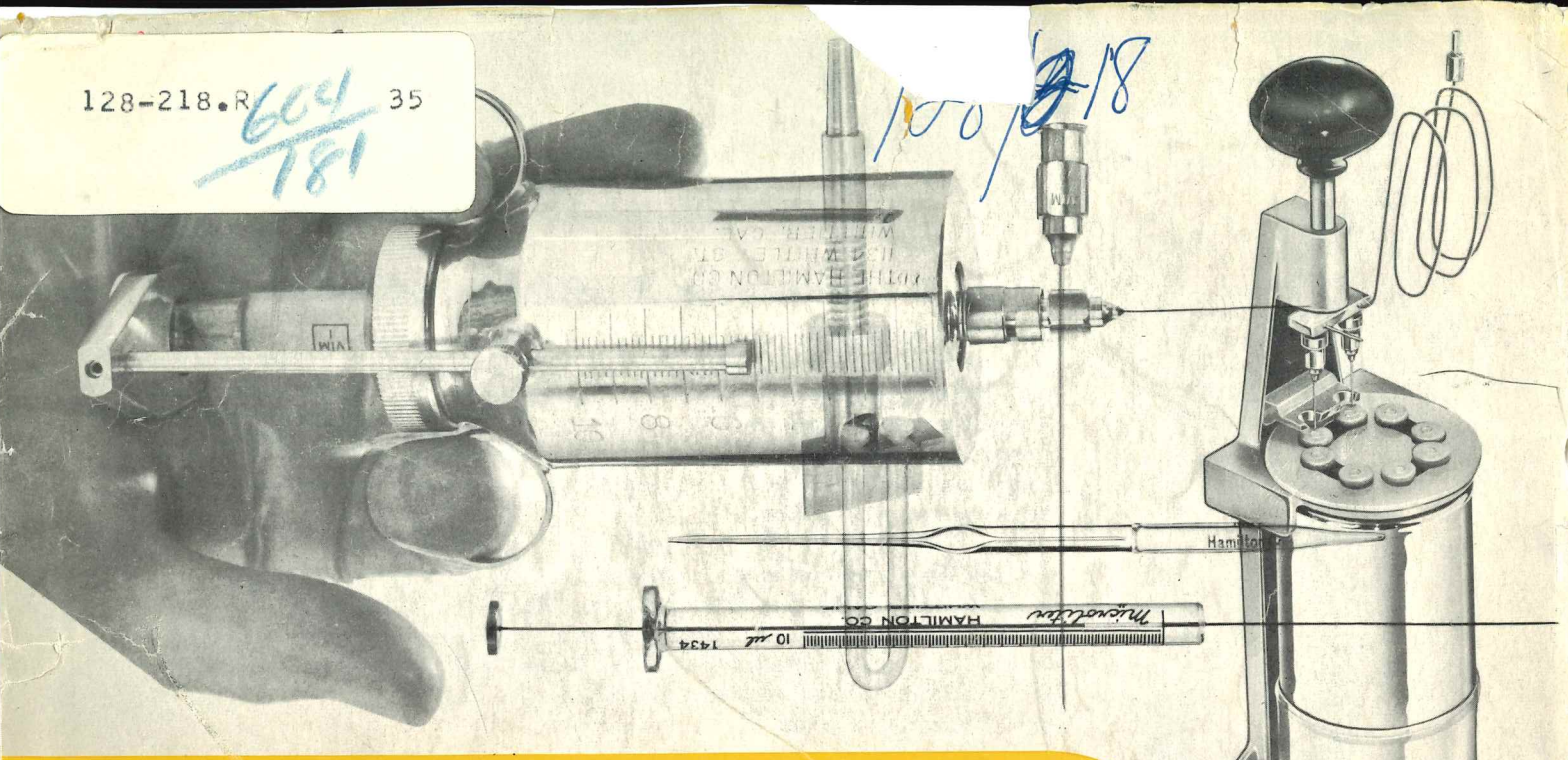


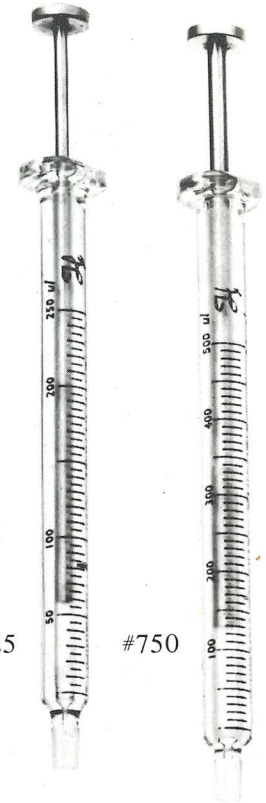
HAMILTON COMPANY CATALOG H-9a

HAMILTON COMPANY, INCORPORATED

U.S. PATENT OFFICE
FEB 1 1962
DIVISION 55

Precision Measuring Equipment for...

CHROMATOGRAPHY
RADIOCHEMISTRY
RADIOMEDICINE



#725 #750

Hamilton Microliter Syringes*

Accurate liquid discharges may be made in the range of 500 ul to 0.02 ul by direct reading of the Hamilton Microliter Syringe scale. These instruments have proven very valuable as research and analysis tools in chemistry, biology, and medicine. Hamilton Microliter Syringes are made of precision bore NC glass, are individually fitted with stainless steel plungers, and are not interchangeable. The clean, unlubricated syringe is leak tight when tested with water at 150 psi. Subdivision of calibration is with precision of graduation better than 2%.

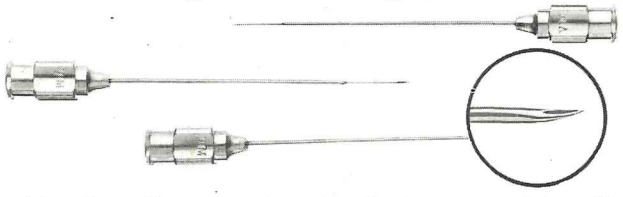
The syringes are in the shape and size of the familiar long tuberculin medical syringe. They terminate in the American Standard for Luer tapers, except the Models #7001N and #701N. The #705 cannot be filled when used with a detachable needle unless special techniques are used, such as a pressurized serum bottle. The #710 can be filled with some difficulty when using needles with small hub hold up. The #725 and #750 can be filled with ease with any needle. This group of syringes are not gas tight when clean and dry.

MODELS AND SIZES

#705 . . . . . **50 ul (0.05 ml or cc) capacity**
#710 . . . . . **100 ul (0.10 ml or cc) capacity**
#725 . . . . . **250 ul (0.25 ml or cc) capacity**
#750 . . . . . **500 ul (0.50 ml or cc) capacity**

*Reprints of paper presented at I.S.A. meeting, Houston, Texas, May 1958, available on request.

Hamilton Special Purpose Needles



The Hamilton Company is not actively engaged in selling commercially available needles. However, we will be pleased to supply your needs at competitive prices.

Hamilton manufactures a wide range of hypodermic needles of special design for laboratory and clinical use. For example: Hamilton needles are available in any length to about 8 feet, with any style point from a square polished tip for paper chromatography, to a 22 degree bent bevel polished for the penetration of septums or rubber closures.

Needles for conducting electricity can be made in single conductor (monopolar) or dual conductor (bipolar) types. The single conductor types are conventional needles insulated on the outside with epoxy resin. Dual conductor needles are made of telescoping tubing. The inner and outer tubes are electrically insulated with epoxy resin. As in the single conductor type, the outside needle is again covered with epoxy resin with an exposed conducting point.

All stainless steel needles and the nickel plated brass hubs can be electroplated with gold or rhodium for special applications.

The N72822 (our popular N700A) is a sheathed needle which can be provided as a two conductor needle. It is customarily supplied to chromatograph users in a 2 inch length with a 22 degree bent and polished bevel point as illustrated. The point is specially designed for the penetration of septums or rubber serum bottle closures. The 28 gage inner needle is two inches in length and extends past the 22 gage stiffening sheath ⅜ inches.

SHEATHED OR BI-POLAR NEEDLES

CATALOG NUMBER	INNER GAGE	OUTER GAGE	MAX. O.D.	MIN. I.D.
N72822 (N700A)	28	22	.028 inches	.006 inches
N73124	31	24	.022 inches	.005 inches
N73326	33	26	.018 inches	.004 inches
N73731*	37	31	.010 inches	.001 inches

*Note: The maximum usable length of the inner needle in this needle is about ¼ inch and the maximum usable length of the assembly is about 1 inch, due to the flexibility.

SMALL DIAMETER NEEDLES

CATALOG NO.	GAUGE	O.D.	I.D.
N737	37	.003	.001
N733	33	.008	.004
N731	31	.010	.005
N730	30	.012	.006
N728	28	.014	.006
N726S	26 Special	.018	.005

Specify length and point when ordering other than stock size 2".

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Pipet Control 1 ml Capacity

The Hamilton Microsyringe pipet control makes pipetting rapid and precise. Smooth control of the meniscus is guaranteed by Hamilton's excellent workmanship and quality control. The optimum in operating range for the 1 ml Microsyringe is from 1 lambda to 200 lambda. To use the Microsyringe, the pipets are connected with a section of Tygon tubing. The liquid meniscus is then raised in the pipet by the dual control, first with the free sliding plunger almost to the pipet calibration line, then with the thumb-wheel control to the scribe line. The unit is constructed of glass and stainless steel. For accuracy and ease, the Hamilton Microsyringe is superior to other controls.

#0010 . . . . . Pipet Control with 1 ml maximum capacity.*

Pipet Control 2 ml Capacity

The Hamilton 2 ml Maximum Capacity Microsyringe extends the optimum pipetting range to 1 ml. The other general specifications are the same as those for #0010.

#0020 . . . . . Pipet Control with 2 ml maximum capacity.*

Glass replacements available at nominal cost.

Pipet Control 5 ml Capacity

The Hamilton 5 ml Maximum Capacity Microsyringe extends the optimum pipetting range to 2.5 ml. The other general specifications are the same as those for #0010.

#0030 . . . . . Pipet Control with 5 ml maximum capacity.*

*Patent No. 2561273

Hamilton Micro and Semi-Micro Pipets

The Hamilton Micro and Semi-Micro Pipets, used in conjunction with Hamilton Microsyringe Controls, give excellent volumetric accuracy. They are individually calibrated "To Contain" or "To Deliver" their stated volumes. The "To Contain" pipets are calibrated with mercury to be accurate to ± 0.2 percent on the larger volumes and to 1 percent on the smaller volumes. The "To Deliver" pipets are calibrated with distilled water to give 2 percent to 3 percent accuracy.

"To Contain" pipets always require a careful rinsing to achieve accuracy. The Microsyringe has been found to be a real aid in these rinsings since it gives accurate control of the meniscus. These pipets are made of borosilicate glass. The uniformly ground and polished tips hold the sample within the pipet.

Specify size, and "To Contain" or "To Deliver." ("To Deliver" pipets available over 9 lambda in only the 580-1, 580-2, and 580-3 sizes.)

#580-1 . . . VOLUMETRIC TRANSFER PIPET

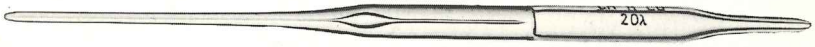
This type of pipet is calibrated for a single volume. These pipets are most widely used and exceedingly accurate.

Sizes 1, 2, 3, 4, 5, 6, 7, 7.5, 8, 10, 15, 20, 25, 30, 35, 40, 50, 60, 75, 100, 200, 250, 300, 400, 450, 500 lambda and 1 ml.

#580-2 . . . SELF FILLING TRANSFER PIPET

This accurate pipet fills automatically by capillary action to a calibrated single volume. The pipet is designed for easy cleaning.

Sizes 1, 2, 5, 10 lambda ("To Contain" only).



#580-3 . . . SELF ADJUSTING TRANSFER PIPET

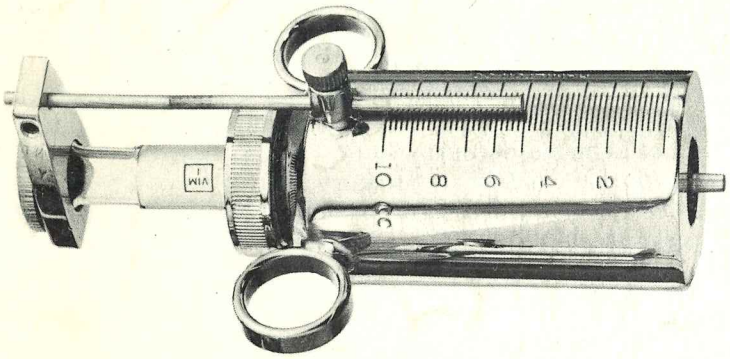
This accurate pipet, partially filled by manual suction, automatically adjusts to a calibrated single volume. The pipet is designed for easy cleaning.

Sizes 20, 25, 50, 100 lambda.

#580-4 . . . GRADUATED PIPET

This type pipet is divided into 5 equal parts of the total volume. A few pipets cover a wide range making this a very useful item.

Sizes 5, 10, 25, 50, 100, 125, 150, 250 lambda.



Lead Shielded Syringe

—For Injection of Gamma Emitters

½ inch lead shielding equivalent to 4 hvls for gold or 16-fold radiation reduction.

Hamilton now offers a complete set of Shielded Syringes ...the lightest weight of shield-to-size yet devised! The Lead Shielded Syringes range from the 10 cc model at 3¾ lbs. to 2 cc model at 1½ lbs.

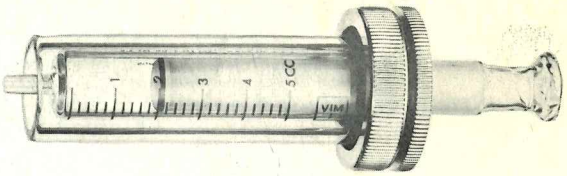
Volumes are easily read from the accurately engraved graduations on the shield. Complete accuracy is assured when the syringe is replaced since the shields fit only American Cyanamid "MacGregor" Interchangeable Syringes. The rod from which volumes are read also serves to lock the syringe plunger against movement. Since this plunger locks the syringe "safe" from spillage in ordinary handling, it is especially convenient for multiple needles. The plungers have the equivalent of one-half inch of lead shielding sealed in their interior. The modified syringe and the hard chrome plated shield are autoclavable. Needle aspiration must be by other means. (#410 illustrated.)

#410 . . . . . 10 cc Interchangeable syringe* and lead shield
#405 . . . . . 5 cc Interchangeable syringe* and lead shield
#402 . . . . . 2 cc Interchangeable syringe* and lead shield
#401 . . . . . 1 cc Long tuberculin (not interchangeable) and lead shield

*Modified with interior lead shielding.

Specify tip on all interchangeable syringes.

Types: All glass, lock type and metal luer.

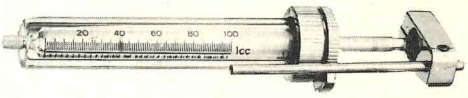


Beta Shielded Syringe

These unique shielded syringes provide complete Beta shielding phosphorus^{32} or yttrium^{90} in any concentration. The clear Pyrex glass envelope around the syringe gives direct reading of the syringe. The shield may be removed and placed on other American Cyanamid Interchangeable Syringes. Glass Beta shield and syringe are fully autoclavable. (#505 illustrated.)

#510 . . . . . 10 cc Interchangeable syringe* and Beta shield
#505 . . . . . 5 cc Interchangeable syringe* and Beta shield
#502 . . . . . 2 cc Interchangeable syringe* and Beta shield
#501 . . . . . 1 cc Long tuberculin (not interchangeable) and Beta shield

*Modified with interior glass shielding.



Beta Shielded Syringe

With Chaney Adaption

These combine the advantages of the above Beta Shielded Syringes with a Chaney Adaptor for the precise delivery of a precalibrated quantity of liquid. The Adaptor is fixed to the plunger by screw connection... secure under the most vigorous use, but making disassembly easy. (#530 illustrated.)

#530 . . . . . 10 cc Interchangeable syringe, Beta shield, with Chaney Adaption
#525 . . . . . 5 cc Interchangeable syringe, Beta shield, with Chaney Adaption
#522 . . . . . 2 cc Interchangeable syringe, Beta shield, with Chaney Adaption
#521 . . . . . 1 cc Long tuberculin (not interchangeable), Beta shield, with Chaney Adaption

ADDITIONAL COPIES OF THIS BROCHURE AVAILABLE UPON REQUEST

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LO. 5-8764

PRECISION MEASURING EQUIPMENT FOR CLINICAL AND CHEMICAL RESEARCH